

Timely Farm Hints

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FIELD CORN (Continued)

In our last paper we discussed the importance and possibilities of the corn crop to Hawaii. In the present article some of the more important practices necessary to insure and maintain maximum quality and quantity production are taken under consideration.

Seed Selection And Improvement

In choosing a variety it should be recognized that corn which succeeds in one location may be totally unsuited to another. It is therefore safest, especially in times like the present, to select the best local variety, at least for the time being. On the other hand, it will pay the corn grower to test out comparatively a number of standard varieties with a view to finding something better, both in productiveness and quality than has hitherto been grown. Thus, while the Kula type of corn succeeds admirably in the environment where it has been developed, its grain is considered so inferior as a market type that the price realized by the grower is always several dollars lower than for yellow dent varieties of medium size grain.

During the past four years the Sub-Station at Hauku has made comparative tests of many of the standard varieties of corn with a view to establishing a type of high quality and productiveness. This has resulted in producing an early maturing, small yellow dent type, which under our conditions has yielded not less than 8 percent and as high as 15 percent increase of grain over its nearest competitor. On the record crop of 100 bushels recorded in our last paper the increase was 45 bushels, equivalent to about 450 pounds. This represents an increased value of at least \$15.00 per acre, at present prices, due to variety alone. For the benefit of those who may wish to make a comparative test of the varieties that have succeeded best with us, we give below a short list in the order of their merit together with brief descriptions.

Yellow Dent Varieties.

Funk's 90 Day. Matures in 100 days at Hauku. Crib dried ears average about 8 ounces. Bright, golden yellow, grain small and deep. Much in demand by the Honolulu market, where it commands the highest price. This is one of the parents of the Sub-Station Hybrid Yellow Dent. Especially suited to a short, dry season.

King of the Earlies. Somewhat similar to Funk's 90 Day and recommended for trial, especially when Funk's 90 Day is not available. While this variety will give better yields than the two varieties following, during very dry years, it is not of as uniform type or so heavy yielder under favorable seasons.

Reeds Yellow Dent. Is a large eared corn frequently weighing 16 ounces, and averaging 9 inches in length. It is one of the oldest standard varieties, and has been very highly bred. The grain is medium to small, of a fine golden, yellow color and superior strains will shell fully 82 percent of grain to cob. We highly recommend this variety where there is ample moisture and high fertility. It requires 120 to 130 days to mature.

Gold Standard Learning. This is another old standard yellow dent corn. It is characterized by its heavy stalks and foliage which makes it an ideal ensilage corn. In the corn belt it is known as the "Feeders Friend", being rich in both protein and oil. It has high feeding value, likewise the cob being rather soft is more readily crushed and masticated by cattle than most of our other varieties. In a number of co-operative experiments with Kula farmers, this variety of the list given herewith proved best, by at least 20 percent in yield for grain. We would especially recommend this variety for trial in the Kula and moisture uplands, both on Maui and the other islands of our group.

We are purposely omitting the White seeded and flint varieties because these are of low market value in Hawaii. However, for those who would care to give them a trial, we would recommend Hickory King as a short season variety, especially suited to the lowlands, and Boone County White for the moisture and cooler uplands having a long season for growth. We have now under test a number of varieties recently sent out by the Hawaii Experiment Station, which includes several flint varieties and one from Guam. These will be reported upon at the end of the season.

Having determined upon a suitable variety, the farmer may well select and improve his corn so as to increase the yield and possibly the quality, although the latter factor is one of a highly technical nature. The yielding capacity of field corn cannot be determined by a mere examination of individual ears taken at random from the bin. We have made many ears to row tests from uniformly fine looking ears which went to prove that good and bad parentage are dominant factors in production. Two equally well shaped ears planted under identical cultural conditions may easily produce yields of fully 50 percent difference.

Time and place, therefore, to make suitable seed selection is in the field when the corn is approaching maturity. Then the type of stalk, the position of the ear on the stalk, the number and the size of the ears and their habit of "hang" may be determined. By "hang" we mean the pointing downward of the ear to enable it to shed rain, thus protecting it against rot in wet weather. All individual stalks which are selected should be marked so that the seed ears can be saved at the time of harvesting. It is well to select at least twice the amount of ears likely to be needed since after the ears are in hand further tests as to type of grain, shelling percentage, germination test etc. will eliminate further a large number of ears.

If the select seed is planted a year on the side of the corn field from which the prevailing winds blow so as to lessen the pollination from poor stalks in the general planting.

better seed corn can be selected from this portion of the field than from a field of corn planted with seed selected at random. Growers who are especially interested in producing corn seed of the highest quality can make further improvement by establishing breeding plots so situated that it cannot be pollinated from other fields. In such cases the seed from the selected ears should be planted in rows by themselves. Each alternate half of the rows are detassled as the flowers appear. This is done to insure that half a row grown from each selected ear will be cross pollinated. But a better plan is to plant two seed plots using some seed from each ear on each plot. If the ears are numbered, then the corn from the even numbered ears should be detassled on one of the plots and the corn from the odd numbered ears on the other. In this way may be tested the producing power of each ear without the possible chance that any of the plants would be self-pollinated. By selecting ears from the best plants in the detassled rows or portion of the rows, seed corn may be secured for further selection until the highest attainable type is secured. This is then grown in multiplying plots until sufficient stock seed is obtained for general planting.

After careful selection has been made for several years, it is sometimes an advantage in so far as increasing productivity is concerned to cross the improved selected corn with other corn of a different variety which has succeeded well in the same locality. While it does not always follow that increased yields are obtained by such crosses, such often happens. The essential thing is, of course, to find two mutually adapted varieties. When this does not occur, the cross may result in a very inferior variety. In any event, it is usually only the first cross that is effective. The second and after generations are frequently very inferior to either parent.

The curing of seed corn that it will maintain strong vitality is of great importance. After harvest, corn should be dried as quickly as possible, else it may heat and become moldy, or else it may reduce the vitality. We at Hauku either place our seed ears in racks or string them in such a way as to prevent the ears in coming in contact with one another. While this requires considerable labor over the bulk of corn in the bin, it pays well to incur the extra labor. The most important point to consider in curing seed corn is a good circulation of air. It should be kept away from direct sunlight and of course moisture is very destructive to the living germ. Seed corn specialists in the corn belt on the mainland build what is known as kiln-drying houses. These buildings are provided with doors or shutters throughout the building, but especially at the ends which are opened in favorable weather, while on damp cold days and at night a slow fire is kept burning and a slow draught of air is maintained.

drive out excessive moisture. The next season just before planting time a half dozen seeds from each ear are tested for vitality. It is remarkable how this will vary in different ears, and it pays well to reject any ears that fail to show strong, vigorous germination. Testing is very easily done by placing the seed on moist sand or sawdust and covering with a moist cloth. The so-called "rag doll" method involves rolling up the kernels in a moist cloth. A string is tied around the ends of the roll and they are set in a moist place, or with one end resting in shallow water. During the germination test the seed should be kept moderately warm. At the end of four or five days the seed will have sprouted sufficiently to determine their vitality. Reject all but the strong, uniform stocks.

Fertility

Of equal importance to good seed corn is the matter of high fertility. No crop feeds more greedily than does corn, and much stress is laid upon this factor in our previous paper. The great value of an abundant supply of organic matter in the soil was pointed out in the effects obtained from green-manuring. It may be said that where there is an abundant supply of animal manures, like favorable results may be obtained. However, when all is done in the way of manuring; opportunity still remains for greatly enhancing the fertility. Organic matter supplies the humus which is the media in which bacterial activity thrives and improves the physical condition of the soil generally, but the mineral plant food constituents are lacking. To supply these we must often resort to the use of commercial fertilizers. While we are opposed to the indiscriminate use of so-called complete fertilizers without having previously determined the elements and forms of compounds in which the soils are lacking by previous field tests, we are strong advocates of making comparative fertilizer experiments. As pointed out previously a high grade, complete fertilizer if wrongly proportioned or of unsuitable kind, may be practically worthless in its effect upon the crop. On the other hand, numerous fertilizer tests at the Hauku Sub-Station have shown us the constituents in which our particular soil is lacking. This we have found to be available phosphoric acid. Innumerable tests on many crops and especially on corn and alfalfa, have shown this to be the limiting factor, and had we known this simple truth in the beginning of our farming operations, we should have saved hundreds of dollars in our fertilizer bills. Not only have we determined that phosphates are necessary, but the forms that are most efficient, and the profitable quantities to use and the rational mode and time of application. In this respect fertilizer tests have increased our efficiency from an initial 10 percent to fully 40 percent. We would strongly urge

upon the corn grower especially whose yields have not been up to par to lay out a systematic fertilizer experiment, including in the project means for determining the value of green-manuring, the use of stable manure, tillage methods and lastly, but by no means least, the seasons for planting. It is only when we have measured the relative importance of each controlling factor in plant growth that we can hope to attain a high proficiency in crop production. It will easily be seen that farming in its higher phases is both an art and a science of which any may well give his best endeavors. The Extension Division in co-operation with the Hawaii Experiment Station stands ready to at all times to lend its assistance.

Getting Even.

"There's a church near," said the country farmer to his paying guest; "not that I ever puts my nose in it."

"Anything the matter with the vicar?"

"Well, it's this way. I sold the old vicar milk and eggs and butter and cheese, and seeing as he patronized me I patronized 'im. But this new chap keeps 'is own cow and 'ens. 'If that's your game,' I thought, 'we'll have 'ome-grown religion too.'—Tit-Bits.

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TERRITORY OF HAWAII to S. Keenani, William L. Decoto, Matikalewa, W. K. Mookini, Antone Recard, Sarah Mookini, Edith Pake Recard, Jesse Hiram, W. J. Kahopukahi, Mrs. Kamaka, Hauki, Kapeka, Charles Ford, Mrs. Philip Pall, Sarah Kepookalani, E. Kanamo Polani, Ingram M. Stainback, Attorney General of the Territory of Hawaii, Henry W. Kinney, Superintendent of Public Instruction of the Territory of Hawaii, Bertram G. Rivenburgh, Commissioner of Public Lands of the Territory of Hawaii, the Pioneer Mill Company, Limited, the Lahaina Agricultural Company, Limited, the Mutual Telephone Company, Limited, and E. Faxon Bishop, William O. Smith, Albert F. Judd, Alfred W. Carter and William Williamson, Trustees under the will and of the Estate of Bernice Pauahi Bishop, deceased; and to ALL whom it may concern:

WHEREAS, a petition has been presented to said Court by the Pioneer Mill Company, Limited, to register and confirm its title in the following described land situate in the Ahupuaa of Puunoa I, at Lahaina, County of Maui, Territory of Hawaii, being a portion of Land Commission Award 8515 to Keoni Ana for G. Lahilahi, Royal Patent 1667, a portion of School Grant 15, Apana 5, to Board of Education, the said land being more particularly described by metes and bounds as follows—

- 65° 30' 240.0 feet along L. C. A. 333 to Kaanani to a concrete post marked † near the edge of swamp;
- 327° 30' 32.2 feet along same to a concrete post marked †;
- 56° 20' 78.0 feet along Grant 962.2 to Puhalahua;
- 183° 00' 30.0 feet along L. C. A. 11223 to Naowaha;
- 144° 12' 61.3 feet along same to a concrete post;
- 60° 30' 44.0 feet along same to fence corner;
- 141° 55' 202.5 feet along fence, along house lot owned by the Lahaina Agricultural Co., Ltd., to fence corner;
- 58° 30' 173.0 feet along fence, along house lot, owned by the Lahaina Agricultural Co., Ltd., to high water mark; Thence along high water mark, the direct azimuth and distance being;
- 138° 15' 317.0 feet to a 2" pipe at the corner of the subdivision by the Mutual Telephone Co., Ltd.;
- 245° 26' 130.5 feet along fence, along lot owned by the Mutual Telephone Co., Ltd.;
- 185° 37' 72.3 feet along same to a 2" pipe;
- 165° 31' 67.6 feet along same to a 2" pipe;
- 136° 14' 160.5 feet along same to a 2" pipe;
- 75° 57' 100.0 feet along same to high water mark; Thence along high water mark the direct azimuth and distance being;
- 171° 12' 112.0 feet;
- 277° 05' 392.9 feet along the (ement Land Alamhi and ing over a concrete post marked † fence corner;
- 333° 04' 359.9 feet along L. 277 to Kan Lunalilo † crete post at fence corner;
- 234° 45' 48.6 feet along C. A. 277 to Kana-ina for Lunalilo;
- 241° 16' 149.8 feet along fence, along same;
- 244° 28' 47.8 feet along fence, along same;
- 253° 47' 21.7 feet along fence, along same to a concrete post marked † on the West side of Governm Road;
- 342° 44' 127.0 feet along it along the West of Governm Road;
- 342° 27' 156.7 feet along West side of ement the poin-ning. Area—5.

YOU ARE HEREBY notified at the Land Court, to City and County of H 8th day of August A. o'clock and thirty min noon, to show cause Why the prayer of sa not be granted. An pear at said Court a place aforesaid you e recorded, and the said e taken as confessed, and e forever barred from content petition or any decree ented on.

WITNESS THE HONORABLE KEMP, Judge of said Court, this 8th day of May, in the year nineteen hundred and seventeen.

Attest with seal of said Court: ANDREW V. HOGA Reg. (May 18, 25, June 1, 8.)

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